ANNALS OF SURGERY.

ON THYROIDECTOMY.

Remarks on the Operation, With a Report of Four Successful Cases.

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THE operation of thyroidectomy, amongst English-speaking communities, is infrequent enough to still offer many points of interest. It may be said, that the introduction of antiseptics into surgical practice, has led to its being more often undertaken and resulted in greater successes being attained. Before recording three successful cases of partial removal of the thyroid gland, effected by myself, and a complete extirpation, by my colleague, Mr. Solly, I would direct attention to the *technique* of the operation.

Whether the tumour is or is not altogether limited to the isthmus of the thyroid, it is best to make direct for that portion of the gland by means of a median incision, varying in length according to the dimensions of the growth. Additional skin incisions can be made subsequently, if necessary. Any large superficial veins that may appear should be divided, after a double ligature of catgut has been applied. When the capsule of the gland has been exposed, and the presence or absence of this structure will give the surgeon an idea as to whether he is attempting to remove a benign or malignant neoplasm, it should be carefully handled and if possible not torn, but incised in the middle line, so as to obtain access to the isthmus. This portion of the gland is to be surrounded by a

double carbolized silk ligature and a division made, either with a pair of scissors or a knife cutting upon a director. By this step the trachea is more or less freed and exposed, so that, if necessary, gentle pressure can be applied by an assistant to the sabre sheath wind-pipe, so as to restore somewhat the lumen of the canal, and by so relieving the stenosis minimize the difficulty of breathing—Prof. Kocher has employed this method with marked effect in several instances in which the trachea was distorted and the tumour adherent to it.

Moreover, by freeing the windpipe at the earliest possible stage of the operation, the breathing is less likely to be impeded by any future traction that may be necessary in the ablation of the tumour. The upper pedicle, containing the superior thyroid artery, is next secured by a double ligature and divided. Finally the lower and larger one, containing the inferior thyroid artery is similarly severed and the tumour removed.

If it be thought advisable to remove the whole gland, the upper and lower angles are secured on the opposite side and the remaining lobe is taken away.

In the present state of knowledge, with the uses and functions of the thyroid gland but vaguely understood, it is better, I think, to perform a partial, rather than a total, extirpation. Such a step will generally relieve all the urgent symptoms. The exposed cervical tissues are thoroughly antisepticized with carbolic or corrosive sublimate lotions, the skin flaps approximated, a drainage-tube inserted at the lowest angle and an antiseptic dressing applied. As part of the after treatment I have found the steam kettle to be a valuable adjunct, for two or three days.

CASE I. Woman, æt. 38; married. Admitted into the General Hospital May 24, 1884.

History: When twelve years of age, noticed a lump as large as a berry on the right side of the neck. No other member of the family similarly affected.

From its first appearance the tumour has slowly increased in size, rather more quickly during her four pregnancies. She has been treated as an out patient of the hospital by Mr. Chavasse for three and a half

years, but in spite of all remedies the neck has become larger, and suffocative feelings have become marked. These are accompanied by throbbings in the affected region and heart palpitations.

On Admission. The right lobe of the thyroid is much enlarged, reaching from the clavicle to the angle of the jaw and apparently twice the size of a man's clenched fist. The isthmus of the gland and also the left lobe are larger and more conspicuous than usual. Large veins are noted running over the surface of the tumour, which is firm to the feel, but movable during manipulation and deglutition. Slight exophthalmos exists, but no bruit is heard in the goitre on auscultation. On exertion the dyspnœa becomes very marked. The various viscera are free from organic disease.

May 30. A skin incision was made from a point immediately below the chin to the sternal notch, and another at right angles to this, commencing opposite the cricoid cartilage across the enlarged lobe. These flaps were dissected back. As far as possible none of the large veins were severed before double ligatures had been applied. The capsule of the gland was well marked. This was opened in the median line and the isthmus secured and divided between two carbolized silk ligatures: a double ligature was next applied to the upper pedicle and the structure divided with scissors. The lower and larger pedicle containing the inferior thyroid artery was similarly treated and the right half of the goitre removed. The wound was then washed with a warm corrosive sublimate lotion (1 to 2000), sutured, drained and dressed with sublimated gauze and bound with pads.

The trachea was found to be much compressed and presented a well marked ridge anteriorly.

The tumour, which weighed nine ounces, was found on examination to be an adenomatous enlargement of the thyroid.

The recovery of the patient was uninterrupted and on June 27 she left the hospital with the wound quite healed. She has been seen many times since, and up to the present time her health has remained good. The slight protrusion of the eyeballs has quite disappeared.

CASE II. Woman, æt. 21; married. Admitted into the General Hospital in June, 1884.

History. Comes of a healthy stock and never had any serious illness. Four years ago a swelling in the cervical region, "feeling something like a marble," was noted. This increased but slowly for two years. Since then the enlargement has been constant and rapid. Three months before admission she gave birth to a male child, and

from that time the goitre has caused so much dyspnœa that her medical attendant, Dr. Edwin Bull, advised a radical cure.

On Admission. The patient is a healthy looking young woman with the right lobe of the thyroid gland much enlarged. The isthmus and left lobe are also more prominent than normal. The circumference of the neck at the cricoid cartilage is $16^1/_2$ inches. The tumour is elastic and freely movable, devoid of pulsation and bruit. A complaint is made of a pricking sensation on swallowing and dyspnœa on slight exertion.

There is no exophthalmos.

June 27. The right lobe of the gland was removed through a single five inch incision made in the median line. The capsule was thin and ill defined. The hæmorrhage was very slight. The antiseptic employed was corrosive sublimate. The trachea was compressed somewhat. The tumour, on examination, proved to be a cystic adenoma; one cyst holding a drachm of serous fluid being revealed on section of the parenchymatous tissue. The solid matter weighed six ounces.

The progress of the case, subsequent to operation, was all that could be desired, and by July 9, the wound was practically healed. The patient was discharged on the 17th. She has remained in good health up to the present time.

CASE III. Woman. æt. 29; married. Admitted to the General Hospital January 1, 2887.

History. Has been married for ten years. Two years before that event first noticed a small lump on the right side of the neck, at the seat of the present tumour. Although it steadily increased in size, it neither caused pain nor inconvenience until three years ago; then a dull aching sensation manifested itself; this was aggravated by lying down at night. For two years past has suffered from breathlessness on slight exertion, such as talking much or walking; this symptom has increased in severity in the last twelve months. For three months there has been pain and difficulty in deglutition. Patient has had four pregnancies, but never noted that there was any increase in the size of the tumour at these times.

On Admission. The patient is well nourished and has rather a high colour. No anæmia. The right lobe of the thyroid gland is about the size of an ordinary orange, smooth and elastic to the feel and moving freely with the trachea. No bruit is heard on auscultation. The tone of the voice is a good deal altered. The various organs of the body are apparently normal.

January 4. The enlarged lobe was removed in the usual way by a ⊣-shaped incision. The capsule was quite distinct. The antiseptic employed was carbolic acid

On examination the tumour was found to be adeno-cystic. Two cysts existed. The anterior and larger one contained three ounces of serous-looking fluid; the smaller and more posterior two drachms. The solid portion of the neoplasm weighed five ounces.

The patient made a rapid recovery; for three days nourishment was mainly administered by the rectum. On January 16 she was allowed to leave her bed, and on the 27th, she left the hospital with the cervical wound quite healed.

CASE IV. Man, æt. 31; married; labourer. Admitted to the General Hospital May 31, 1883 (under my colleague, Mr. Solly).

Family History. A brother had a small bronchocele. *Previous History.* Had always been well and strong.

Two and a half years ago a tumour about the size of an egg was noticed in the middle line of the neck. This gradually increased until ten months ago; since then it has remained stationary. Eighteen months ago, noticed that on making any exertion, he felt short of breath. Seven months ago his wife noticed that his speech was becoming thick. Has had no difficulty in swallowing.

On Admission. Patient presents a uniform globular swelling in the position of the thyroid gland, elastic but not fluctuating, moving freely with the trachea, and not tender on pressure. In size it is equal to an ostrich's egg, and the skin covering it is normal.

May 11. Tumour removed by a vertical incision in the median line. It was distinctly encapsuled. The four angles of the gland were secured by carbolised silk ligatures and removal effected.

The antiseptic employed was carbolic acid. On examination, the tumour proved to be adenomatous and weighed $17^1/_2$ ounces.

May 30. Patient was discharged; wound healed. He is still living apparently a healthy man, following his ordinary occupation.

Tracheotomy during Thyroidectomy. The cartilages of the trachea prevent the sides of the tube being approximated by atmospheric influences during respiration, and also prevent kinking during the movements of the head and neck.

The presence of a bronchocele of a solid form, by pressure causes an alteration in the direction of the windpipe: hence, the "sabre sheath" appearance described by Rose. To this

alteration, in fact a more or less stenosed condition of the trachea, the dyspnœa may mainly be attributed. During the administration of an anæsthetic, special care should be taken that the patient's neck is not stretched more than it is possible to avoid; if so, the dyspnœa will probably become alarming.

The presence of dyspnœa is an argument for exposing the isthmus of the thyroid gland as early as possible in the operation, and by this step placing the trachea well under the operator's control. If in alarm the windpipe be opened at an early stage of the proceedings, then the chances of a successful issue ultimately are reduced to a minimum. Those cases, three in number, in which I have seen such a step taken, either purposely or accidentally, have all died. Billroth's and Kocher's much larger experience tend to the same unfavorable opinion.

The performance of tracheotomy renders the employment of antiseptics useless; blood in all probability freely enters the trachea, the wound speedily becomes septic and death occurs either from broncho-pneumonia or mediastinal complications. Moreover, unless a very long tube be inserted into the trachea when opened (a lithotomy tube or a large sized soft catheter are probably the best), during each attempted inspiration the sides of the windpipe are approximated below the tracheal tube, and in watching such a patient, it is seen that really very little air reaches the lungs, although any that is present is readily expired.

Stitching the edges of the tracheal wound to the skin does not seem to help us much. Again, the open treatment necessitated by tracheotomy deprives the trachea of the support, especially the slight pressure anteriorly previously alluded to as lessening dyspnœa, which is afforded by the application of suitable dressings to the neck.

Age is an important factor to take into consideration when an operation is contemplated. According to some authorities, after forty the chances of a successful issue are doubtful. In two fatal cases that have lately come under notice, the one a a woman, æt. 55, the other a man of the same years, in both the dyspnœa being urgent, the tumours microscopically proved

to be spindle-celled sarcomata. My own experience is too limited to state that all solid goitres showing rapid growth and marked symptoms in patients over forty are malignant, but such a condition may certainly be suspected owing to the proneness with which all neoplasm assume the degenerative types at or about that age. The difficulties of removing such a growth are very often great; although seemingly movable, the actual operation reveals that they are practically irremovable owing to their deep connections. In the case of the man referred to, the tumour entered the carotid sheath, and part of the vagus nerve implicated in the growth was taken away with it.

According to Wölffler, Professor Billroth does not find it necessary to operate upon children under ten or eleven years of age.

Myxœdema. The occurrence of operative myxœdema (cachexia strumipriva) so ably described by Reverdin and Kocher, may possibly be intimately associated with the previous family history, with the habitat, the diet and every-day surroundings of the patient. The investigations at present engaging the attention of the London Clinical Society, may throw some new light upon this important subject, but at present I am doubtful if the condition will be found to occur, after partial or complete thyroidectomy, in English-speaking patients, previously healthy, with a degree of frequency that will make it a matter of practical importance.